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# EPA's Utility MACT: Will the Lights Go Out?

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## Summary

On December 21, 2011, EPA Administrator Lisa Jackson announced final standards aimed at reducing mercury and other air toxics emissions from electric generating units (EGUs) by about 90%. The rule, commonly referred to as the “Utility MACT” or the “Mercury and Air Toxics Standards” (MATS), has been more than a decade in the making (Congress authorized the standards in the 1990 Clean Air Act Amendments), and it is among the most expensive rules that EPA has ever promulgated. EPA estimates the annualized cost at \$9.6 billion in 2015. Industry estimates have been higher.

The benefits are also large, according to EPA, ranging from \$37 billion to \$90 billion annually. The benefits mostly reflect the monetized value of avoiding up to 11,000 premature deaths annually.

The rule’s costs will fall primarily on older coal-fired units that do not have state-of-the-art pollution controls. EPA says that this is a minority of coal-fired plants and an even smaller share of all electric generation: the agency estimates that 56% of coal-fired units have already installed equipment that can be used to meet the standards. In addition, about 55% of the nation’s electricity supply comes from natural gas, nuclear, and renewable sources that are not subject to the rule’s requirements.

This report describes the rule and its potential impact. The report discusses previous EPA efforts to regulate utility mercury emissions, the court decision overturning those regulations, the specifics of the new rule, its estimated costs and benefits, the impact of the rule on electric reliability, and legislation related to it that has been or may be considered in the 112<sup>th</sup> Congress.

Industry and environmental groups have been keenly interested in both the substance of the rule and the schedule for its implementation, and the House has already passed legislation (H.R. 2401) that would change both. A particular issue has been whether the standards will lead to retirement of a significant number of electric generating units, with negative effects on the reliability of the power supply. EPA and many other analysts maintain that this will not be the case.

To address this question, this report reviews industry data on planning reserve margins and potential retirement of units that do not currently meet the standards. Based on these data, it appears that, although the rule may lead to the retirement or derating of some facilities, almost all of the capacity reductions will occur in areas that have substantial reserve margins. Two areas that may have difficulty meeting reserve margins, Texas and New England, will experience few plant retirements and deratings, according to industry data. Furthermore, to address the reliability concerns expressed by industry, the final rule includes provisions aimed at providing additional time for compliance if it is needed to install pollution controls or add new capacity to ensure reliability in specific areas. As a result, it is unlikely that electric reliability will be harmed by the rule.

Another potential concern, given the rule’s cost, is what impact it may have on the price of electricity. EPA estimates that the average price of electricity nationally will increase by 3.1% by 2015, as a result of the rule. Electricity prices have declined more than 20% in real terms since 1980. The impact of price changes would be relatively small compared to this downward trend, and well within the normal range of historical price fluctuations.

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## Introduction

On December 21, 2011, EPA Administrator Lisa Jackson announced final standards for mercury and other air toxics emissions from electric generating units (EGUs).<sup>1</sup> The rule, commonly referred to as the “Utility MACT” or the “Mercury and Air Toxics Standards” (MATS), has been a long time in the making: Congress authorized the standards in the 1990 Clean Air Act Amendments, and EPA made a preliminary determination and began developing actual standards in 2000. The rule is among the most expensive rules that EPA has ever promulgated: EPA estimates the annualized cost at \$9.6 billion in 2015.<sup>2</sup> Industry estimates have been higher,<sup>3</sup> although most analyses were conducted before EPA proposed or promulgated the final rule.

Industry and environmental groups have been keenly interested in both the substance of the rule and the schedule for its implementation, and the House has already passed legislation (H.R. 2401) that would change both.

This report describes the rule and its potential impact. The report begins with a background section that describes the statutory authority and history of the rule’s development before discussing the specifics of the rule, its estimated costs and benefits, and legislation related to it that has been considered in the 112<sup>th</sup> Congress.

## Background

In 1990, when Congress enacted amendments to the Clean Air Act, one of the major changes to the act was a new set of requirements that EPA was to impose on sources of hazardous air pollutants. Unhappy with the slow pace at which EPA was regulating emissions of these pollutants, Congress removed most of the agency’s discretion as it restructured the program: it listed 189 hazardous air pollutants (HAPs) in the statute<sup>4</sup> and required EPA to identify sources that emitted more than 10 tons of any individual HAP or 25 tons of any combination.<sup>5</sup> EPA was directed to impose the “Maximum Achievable Control Technology” on these sources, a term defined with great precision in the statute. Standards for all categories and subcategories of sources were to be promulgated no later than 10 years after the date of enactment (i.e., by November 15, 2000), and sources were to comply with the standards three years after their promulgation, with one additional year available in limited cases.

Electric utilities lobbied hard for an exception to these requirements. What they got was a special subsection of the act (Section 112(n)(1)) that required EPA to undertake a study and report to

<sup>1</sup> The rule has not yet been published in the *Federal Register*. A pre-publication copy of the rule and explanatory materials are available on EPA’s website at <http://www.epa.gov/airquality/powerplanttoxics/actions.html>.

<sup>2</sup> U.S. EPA, Office of Air Quality Planning and Standards, *Regulatory Impact Analysis for the Final Mercury and Air Toxics Standards*, December, 2011, p. 3-31, at <http://www.epa.gov/ttn/ecas/regdata/RIAs/matsriafinal.pdf>. Hereinafter, “Regulatory Impact Analysis.”

<sup>3</sup> For a discussion of the impacts of the Utility MACT and other rules affecting the electric power industry, see CRS Report R41914, *EPA’s Regulation of Coal-Fired Power: Is a “Train Wreck” Coming?* One cost estimate issued after the rule’s release can be found at National Association of Manufacturers, “Manufacturers: Utility MACT Is Extremely Costly Regulation,” Press Release, December 21, 2011, at <http://www.nam.org/Communications/Articles/2011/12/Manufacturers-Utility-MACT-Is-Extremely-Costly-Regulation.aspx>.

<sup>4</sup> The list is found in Section 112(b) of the act. Congress and EPA have each removed one HAP from the list since 1990, leaving 187 HAPs on the current list.

<sup>5</sup> Overall, EPA identified 174 industrial categories to be regulated under the MACT provisions. Standards have been promulgated for almost all these categories except EGUs.

Congress on the hazards to public health reasonably anticipated to occur as a result of emissions by EGUs and alternative control strategies for the emissions. The study was to be completed within three years of the date of enactment, and the EPA Administrator was directed to regulate EGUs if she found such regulation to be “appropriate and necessary after considering the results of the study.” The study was completed in February 1998,<sup>6</sup> and the Administrator published a finding that regulation was appropriate and necessary on December 20, 2000.<sup>7</sup>

Although EGUs emit numerous HAPs, the principal HAP of concern has been mercury. Mercury is a potent neurotoxin that can harm health at very low concentrations—the principal effects being delayed development, neurological defects, and lower IQ in fetuses and children.<sup>8</sup> The principal route of exposure to mercury is through consumption of fish. Mercury enters water bodies, often through air emissions, and is taken up through the food chain, ultimately affecting humans as a result of fish consumption. All 50 states have issued fish consumption advisories due to mercury pollution, covering 16.8 million acres of lakes, 1.25 million river miles, and the coastal waters of 20 entire states.<sup>9</sup> Coal-fired electric generating units account for about half of U.S. mercury emissions.

Based largely on the concerns about mercury, the Administrator determined that regulation was appropriate and necessary in December 2000, and the agency proceeded to develop regulations for the EGU category. In 2005, however, upon completion of the process, EPA promulgated regulations establishing a cap-and-trade system to limit emissions of mercury from coal-fired power plants rather than the plant-specific Maximum Achievable Control Technology (MACT) standards required by Section 112 of the act. All previous sources of mercury subject to emission standards had been required to meet plant-specific MACT standards.<sup>10</sup>

Section 112 sets out very detailed requirements for MACT standards, including a list of the pollutants that need to be controlled (not just mercury, but any of 186 other HAPs) and the level of control that the standards must achieve. The 2005 cap-and-trade rules addressed only mercury, and would have allowed many power plants to avoid control provided they obtained allowances from others who achieved lower pollution levels than required, or reduced emissions sooner than required. The ability of plants to avoid emission control by purchasing allowances could lead to the continuation of “hot spots,” areas where mercury concentrations in waterbodies are greater than elsewhere.

By contrast, MACT standards are required by Section 112 of the act to be applicable at each existing plant and to be no less stringent than the average emission limitation achieved by the best performing 12% of existing sources in the industry subcategory.<sup>11</sup> These statutory requirements

<sup>6</sup> The study is available at <http://www.epa.gov/ttn/oarpg/t3/reports/eurtc1.pdf>.

<sup>7</sup> U.S. EPA, “Regulatory Finding on the Emissions of Hazardous Air Pollutants from Electric Utility Steam Generating Units,” 65 *Federal Register* 79825, December 20, 2000. In Section III of the Preamble to the final (December 2011) MATS standards, the Administrator affirmed the “appropriate and necessary” finding. A pre-publication copy is available at <http://www.epa.gov/airquality/powerplanttoxics/pdfs/20111216MATSfinal.pdf>.

<sup>8</sup> For a detailed discussion of mercury’s health effects, see CRS Report RL32420, *Mercury in the Environment: Sources and Health Risks*.

<sup>9</sup> See U.S. EPA, “National Listing of Fish Advisories: Technical Fact Sheet,” September 2009, at <http://water.epa.gov/scitech/swguidance/fishshellfish/fishadvisories/tech2008.cfm>.

<sup>10</sup> Besides EGUs, the two biggest U.S. sources of mercury in 1990 were municipal waste incinerators and medical waste incinerators. EPA regulations required both of these categories to meet MACT standards in the 1990s, and they reduced their mercury emissions by 96% and 98% respectively by 2005. EGU emissions, not subject to MACT standards, were only reduced 10% during that period.

<sup>11</sup> For new sources, the standards are to be based on the emission control achieved by the best controlled similar source.

are referred to as the “MACT floor,” because the agency is not allowed to set less stringent standards, nor may it take economic factors into account in determining what the floor will be.

Whether the agency could substitute cap-and-trade rules for the MACT requirements was challenged by the State of New Jersey and others, and, in a 3-0 decision, the D.C. Circuit Court of Appeals vacated the cap-and-trade rules in 2008.<sup>12</sup> Rather than appeal the court’s ruling to the Supreme Court or attempt to delist the category, EPA proposed the Utility MACT standards on March 16, 2011, and finalized them on December 21. In between those dates, the agency held three public hearings and provided a 90-day public comment period that resulted in 960,000 comments on the rule, of which the agency said approximately 20,000 were unique comments. As of early January 2012, the final rule had not appeared in the *Federal Register*, but a pre-publication copy is available at <http://www.epa.gov/airquality/powerplanttoxics/pdfs/20111216MATSFinal.pdf>.

## The Final Rule

The final rule is similar to the March 2011 proposal.<sup>13</sup> The rule will result in about a 90% reduction from uncontrolled power plant emissions of mercury, nine other toxic metals, and three acid gases, all of which were listed by Congress as hazardous air pollutants in the 1990 Clean Air Act Amendments.<sup>14</sup> According to EPA, power plants are the largest emitters of many of these pollutants, accounting for about 50% of the nation’s mercury emissions, 62% of arsenic emissions, and 82% of hydrochloric acid emissions, for example.<sup>15</sup> The Utility MACT will also reduce emissions of sulfur dioxide and fine particulates (PM<sub>2.5</sub>), which, although not categorized as hazardous air pollutants, are estimated to cause thousands of premature deaths annually.

The rule affects about 1,100 coal-fired and 300 oil-fired units.<sup>16</sup> Despite the fairly large number of oil-fired units, they account for only 1% of U.S. electricity generation, and they are mostly unaffected by the rule. EPA estimates that the total annualized costs for compliance by oil-fired units will be \$56 million (less than 0.1% of the rule’s cost), and that there will be no change in oil-fired capacity as a result of the rule.<sup>17</sup> Thus, the remainder of this discussion focuses on coal-fired units, which will bear the brunt of the compliance cost.

In proposing the standards, EPA noted that while the requirements are stringent for those facilities lacking controls, 56% of existing coal-fired power plants already have equipment in place needed to achieve compliance. Thus, when implemented in 2015 or 2016, the standards are expected to level the playing field, bringing older, poorly controlled plants up to the standards being achieved by a majority of the existing units. In this respect, the standards reflect the statute’s requirement

<sup>12</sup> *New Jersey v. EPA*, 517 F.3d 574 (D.C. Cir. 2008). The court found that, under Section 112, unless EPA “delisted” the category of HAP sources, it had to require that each plant in the category meet MACT standards. Under the statute, delisting would have required a finding that no EGU’s emissions exceeded a level adequate to protect public health with an ample margin of safety, and that no adverse environmental effect would result from any source.

<sup>13</sup> For a link to the proposed rule as well as explanatory material, see U.S. EPA, “Reducing Toxic Air Emissions from Power Plants,” at <http://www.epa.gov/airquality/powerplanttoxics/actions.html>.

<sup>14</sup> U.S. EPA, “Benefits and Costs of Cleaning Up Toxic Air Pollution from Power Plants,” p. 2, at <http://www.epa.gov/airquality/powerplanttoxics/pdfs/20111221MATSImpactsfs.pdf>.

<sup>15</sup> See U.S. EPA, “Memorandum: Emissions Overview: Hazardous Air Pollutants in Support of the Final Mercury and Air Toxics Standard,” November 2011, Tables 5 and 6, available at <http://www.epa.gov/airquality/powerplanttoxics/pdfs/20111216EmissionsOverviewMemo.pdf>.

<sup>16</sup> EPA, Regulatory Impact Analysis, p. 3-3.

<sup>17</sup> *Ibid.*, pp. 3-30 and 3-19.

that existing sources of HAPs should meet standards based on the current emissions of the best performing similar sources.

## EPA's Analysis of Costs, Benefits, and Control Technology

[Note: This discussion refers to the costs and benefits of the MATS rule only. EPA is also developing other rules for electric generating units, affecting air emissions, cooling water intake, and the management of coal combustion residuals, leading some stakeholders and policy-makers to question whether the cumulative impacts of these rules will have harmful impacts on electric generation capacity. For analysis of the cumulative impacts, see CRS Report R41914, *EPA's Regulation of Coal-Fired Power: Is a "Train Wreck" Coming?*]

### Costs

EPA projects the annualized cost of compliance with the final MATS rule at \$9.6 billion in 2015, gradually declining to \$7.4 billion annually in 2030. Total electric utility revenues from sales to ultimate customers equaled \$369 billion in 2010, according to the Energy Information Administration (EIA).<sup>18</sup> Thus, the annualized cost would be less than 3% of current industry revenues. For individual companies and plants, however, and for regions of the country, the percentage may be higher or lower depending on the type of units operated by the company (coal, gas, nuclear, etc.) and, for coal-fired units, whether they have already installed control equipment.

The average consumer will see an increase of 3.1% (\$3-\$4 per month) in the cost of electricity in 2015 due to the rule, according to EPA, falling to less than 1% by 2030.<sup>19</sup> As shown in **Figure 1**, electricity prices have declined by about 20% since the early 1980s, after adjusting for inflation.

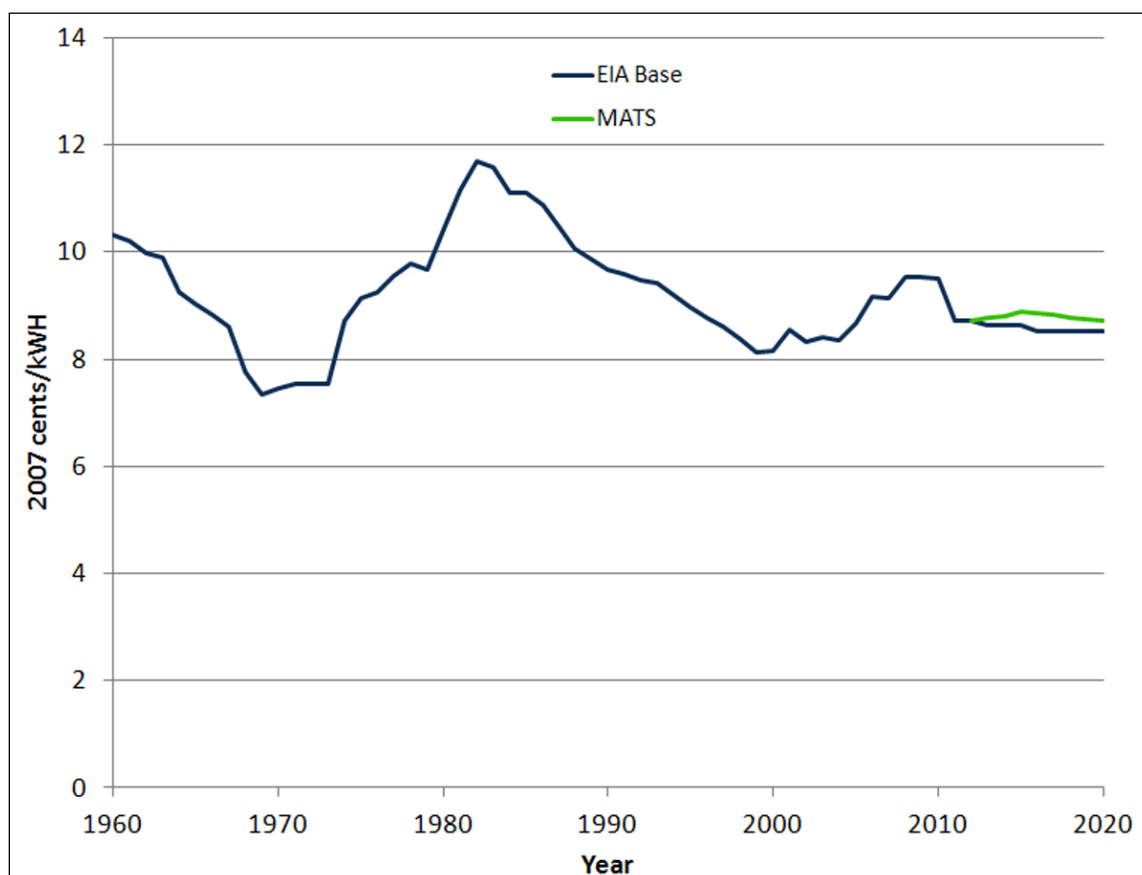
Reflecting the range of cost increases experienced by utilities, EPA estimates that retail electricity price increases will also vary, from a low of 1.3% in California, to a high of 6.3% in the area served by the Southwest Power Pool (SPP)—Oklahoma, Kansas, and parts of five other states. The SPP region currently has the second lowest electricity prices in the country, and will continue to have the second lowest prices even after increases due to the MACT rule, according to EPA.<sup>20</sup>

<sup>18</sup> U.S. Department of Energy, Energy Information Administration, at [http://www.eia.gov/electricity/sales\\_revenue\\_price/pdf/table3.pdf](http://www.eia.gov/electricity/sales_revenue_price/pdf/table3.pdf).

<sup>19</sup> The estimated price increase is from EPA, Regulatory Impact Analysis, p. 3-24. According to U.S. DOE's Energy Information Administration, the average monthly residential electric bill was \$103.67 in 2009. See <http://205.254.135.7/cneaf/electricity/esr/table5.html>.

<sup>20</sup> EPA, Regulatory Impact Analysis, pp. 3-24 and 3-25.

**Figure I. Average U.S. Total Electricity Prices**  
 Historical to 2010 & Projections With and Without MATS  
 (2007 cents/kWh)



**Source:** U.S. EPA. EIA base refers to historical data and projections of the U.S. Department of Energy's Energy Information Administration.

## Control Technology

The cost of compliance with the Utility MACT/MATS rule results largely from the installation of scrubbers and fabric filters on coal-fired generation units.<sup>21</sup> As a result of the rule, 20 gigawatts (GW) of coal-fired units, about 7% of total coal-fired capacity, are expected to install scrubbers. EPA estimates that by the time the rule requires compliance, 203 GW will already have installed scrubbers as a result of other regulations, so the new installations, while expensive, are more incremental rather than a major departure from current practice. About one-third of the already installed scrubbers (63 GW) will need to be upgraded to improve their ability to capture pollutants.

<sup>21</sup> Scrubbers (more formally, flue gas desulfurization equipment) generally operate by spraying a lime or limestone slurry into the flue gas stream. The slurry reacts with the flue gas, absorbing and neutralizing the pollutants, which are then removed by a fabric filter (also known as a "baghouse") or an electrostatic precipitator, which collects particles by imparting an electrical charge to them. For more information, see U.S. EPA, "Air Pollution Control Technology Fact Sheets," at <http://www.epa.gov/ttn/catc/dir1/ffdg.pdf> and at <http://www.epa.gov/ttn/catc1/dir1/fdespwpi.pdf>.



One-third of the coal-fired EGU capacity (102 GW) are expected to add fabric filters because of the rule, while 90 GW would have them whether or not there were a rule. In most cases, the fabric filters will be coupled with activated carbon injection or dry sorbent injection. Mercury and other HAPs become attached to the carbon or sorbent after it is injected into the flue gas, and the fabric filter collects the particles, removing them from the plant's emissions. EPA estimates that 99 GW of coal-fired capacity (about one-third of the U.S. total) will add activated carbon injection by 2015 because of the rule. The rule also results in 44 GW of dry sorbent installations.<sup>22</sup>

This is not complicated or new technology. Other types of facilities (notably solid waste incinerators) have used this technology for the past 15 years to reduce their mercury and other HAP emissions by 95% or more. As a result of state-level pollution control regulations, a growing percentage of coal-fired power plants do the same.

## Benefits

The benefits of the rule are estimated by EPA at \$37 billion to \$90 billion annually—4 to 9 times as great as the costs—due primarily to the avoidance of up to 11,000 premature deaths each year. Other benefits, only some of which were given dollar values, include the annual avoidance of 4,700 nonfatal heart attacks, 130,000 asthma attacks, and developmental effects on children, including effects on IQ, learning, and memory.<sup>23</sup>

## Economic Impacts

Of the dozens of recently proposed EPA rules, the Utility MACT is probably the most costly.<sup>24</sup> It is likely to affect older coal-fired plants that have not yet installed current pollution control technology. The agency concluded that some of these plants, representing less than 5 GW of coal-fired capacity, would be retired by 2015, rather than invest in control technologies. In all, it said, coal-fired generation would decline 1.3% compared to estimated generation in the absence of the rule.<sup>25</sup>

Retirement of these older plants could lead to job losses at some specific locations, but overall, EPA's analysis concludes that the rule is likely to lead to an increase in employment. The agency finds that 46,000 job-years will be required for construction/installation of pollution control equipment and 8,000 long-term utility jobs will be created to operate and maintain the controls.<sup>26</sup> Others challenge these conclusions: the Edison Electric Institute, the National Association of Manufacturers, and other industry groups maintain that increased costs of electricity will cause job losses in industries that rely heavily on electricity and are located in areas of the country that will be most affected by the rule.

Although generally requiring controls on each individual source, the regulations do allow averaging of emissions from multiple units at a single location, which may allow some older units that are operated infrequently to remain in service. The absence of broader allowance trading provisions in the authorizing statute and the stringency of the emission requirements mean that most units will not be able to escape regulation. For a broader discussion of the EPA rules

<sup>22</sup> The data on projected installation and upgrade of pollution control equipment due to the rule are from EPA's Regulatory Impact Analysis, pp. 3-14 to 3-16.

<sup>23</sup> U.S. EPA, "Benefits and Costs of Cleaning Up Toxic Air Pollution from Power Plants," p. 1.

<sup>24</sup> For a discussion of major EPA rules recently proposed or promulgated, see CRS Report R41561, *EPA Regulations: Too Much, Too Little, or On Track?*

<sup>25</sup> EPA, Regulatory Impact Analysis, p. 3-16.

<sup>26</sup> EPA, Regulatory Impact Analysis, Chapter 6.

affecting coal-fired power plants, see CRS Report R41914, *EPA's Regulation of Coal-Fired Power: Is a "Train Wreck" Coming?*

## Industry Analyses of the Utility MACT Rule

Electric power generators are split over EPA's rule. Companies that rely on nuclear power or natural gas for most of their power, and have fewer coal-fired plants, and companies that have already invested in controls due to state requirements or other federal regulations, generally support the rule. A number of these utilities, accounting for about 20% of U.S. electric generating capacity, have formed the Clean Energy Group. At an April hearing of the House Energy and Commerce Committee, Michael Bradley, the group's Director, stated:

While not perfect, the proposal is reasonable and consistent with the requirements of the Clean Air Act... While complying with these obligations will take planning and significant resources by the electric sector, many companies are well on their way toward compliance and, based on the proposed rule, we anticipate that the electric sector can comply with the Act's requirements. There is no reason to delay the implementation of the Utility Toxics Rule.<sup>27</sup>

Opponents of the rule have the support of the industry's main trade association, the Edison Electric Institute (EEI), as well as groups representing the coal industry. In a report written before EPA even proposed the Utility MACT, EEI concluded that, "All coal units [would be] required to install a scrubber (wet or dry), activated carbon injection (ACI) and a baghouse/fabric filter" for compliance with the MACT.<sup>28</sup> This goes well beyond what EPA proposed and what it promulgated in the final rule. Compared to EPA's projections, EEI concluded that five times as much scrubber capacity, nearly three times as much ACI, and about one and one-half times as much baghouse capacity would need to be added, making the rule substantially more costly and far more difficult to comply with in the limited time provided by the statute.

A report by the North American Electric Reliability Corporation (NERC),<sup>29</sup> which was also written before EPA proposed the Utility MACT, also assumed that vastly more pollution control equipment would need to be added to coal-fired plants than EPA believes will be necessary. The NERC analysis assumed wet scrubbers would be added to all coal-fired plants that don't already have them, that selective catalytic reduction (SCR) will be added to all bituminous coal-powered facilities, and that activated carbon injection and baghouses/fabric filters would be added at all facilities burning other types of coal.<sup>30</sup> These assumptions are similar to EEI's except that by

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<sup>27</sup> Summary of Testimony, Michael J. Bradley, House Energy and Commerce Committee, "The American Energy Initiative: Recent EPA Rulemakings Relating to Boilers, Cement Manufacturing Plants, and Utilities," Hearing, April 15, 2011.

<sup>28</sup> ICF International, Potential Impacts of Environmental Regulation on the U.S. Generation Fleet, Final Report, prepared for the Edison Electric Institute, January 2011, p. 43, available at [http://www.pacificorp.com/content/dam/pacificorp/doc/Energy\\_Sources/Integrated\\_Resource\\_Plan/2011IRP/EEIModelingReportFinal-28January2011.pdf](http://www.pacificorp.com/content/dam/pacificorp/doc/Energy_Sources/Integrated_Resource_Plan/2011IRP/EEIModelingReportFinal-28January2011.pdf). Hereinafter, "EEI Report."

<sup>29</sup> North American Electric Reliability Corporation, *2010 Special Reliability Scenario Assessment: Resource Adequacy Impacts of Potential U.S. Environmental Regulations*, October 2010, [http://www.nerc.com/files/EPA\\_Scenario\\_Final.pdf](http://www.nerc.com/files/EPA_Scenario_Final.pdf). NERC is an independent organization, founded by the electric utility industry, that conducts periodic, independent assessments of the reliability and adequacy of the bulk power system in North America.

<sup>30</sup> North American Electric Reliability Corporation, *2010 Special Reliability Scenario Assessment: Resource Adequacy Impacts of Potential U.S. Environmental Regulations*, October 2010, p. 50, [http://www.nerc.com/files/EPA\\_Scenario\\_Final.pdf](http://www.nerc.com/files/EPA_Scenario_Final.pdf). Hereinafter referred to as the "2010 NERC report." NERC is an independent organization, founded by the electric utility industry, that conducts periodic, independent assessments of the reliability and adequacy of the bulk power system in North America.

assuming wet scrubbers (instead of EPA's general assumption that dry scrubbers will suffice) and by assuming SCR at bituminous facilities, the cost impacts would most likely be even greater than the costs in EEI's assessment.<sup>31</sup>

A November 2011 Reliability Assessment by NERC made minor adjustments to these assumptions, but still concluded that scrubbers would be required on all operating coal-fired facilities and that a much higher percentage of facilities would require baghouses and ACI than EPA projected. Despite these more costly assumptions, NERC found that generation capacity would decline only about 1% nationwide as a result of the Utility MACT.<sup>32</sup> The 2011 report concludes that 6.5 to 9.9 GW of coal-fired capacity would be retired and 2.1 GW would be derated<sup>33</sup> as a result of the MACT rule.

## Will the Lights Go Out?

NERC also looked at reserve margins in 18 regions covering the 48 mainland U.S. states, and found that only two of the regions – ERCOT (the Texas electrical grid, which is not interconnected with other regional transmission organizations) and New England – would experience planning reserve margins below the NERC Reference Level of 15% in 2015.<sup>34</sup> See **Figure 2**.

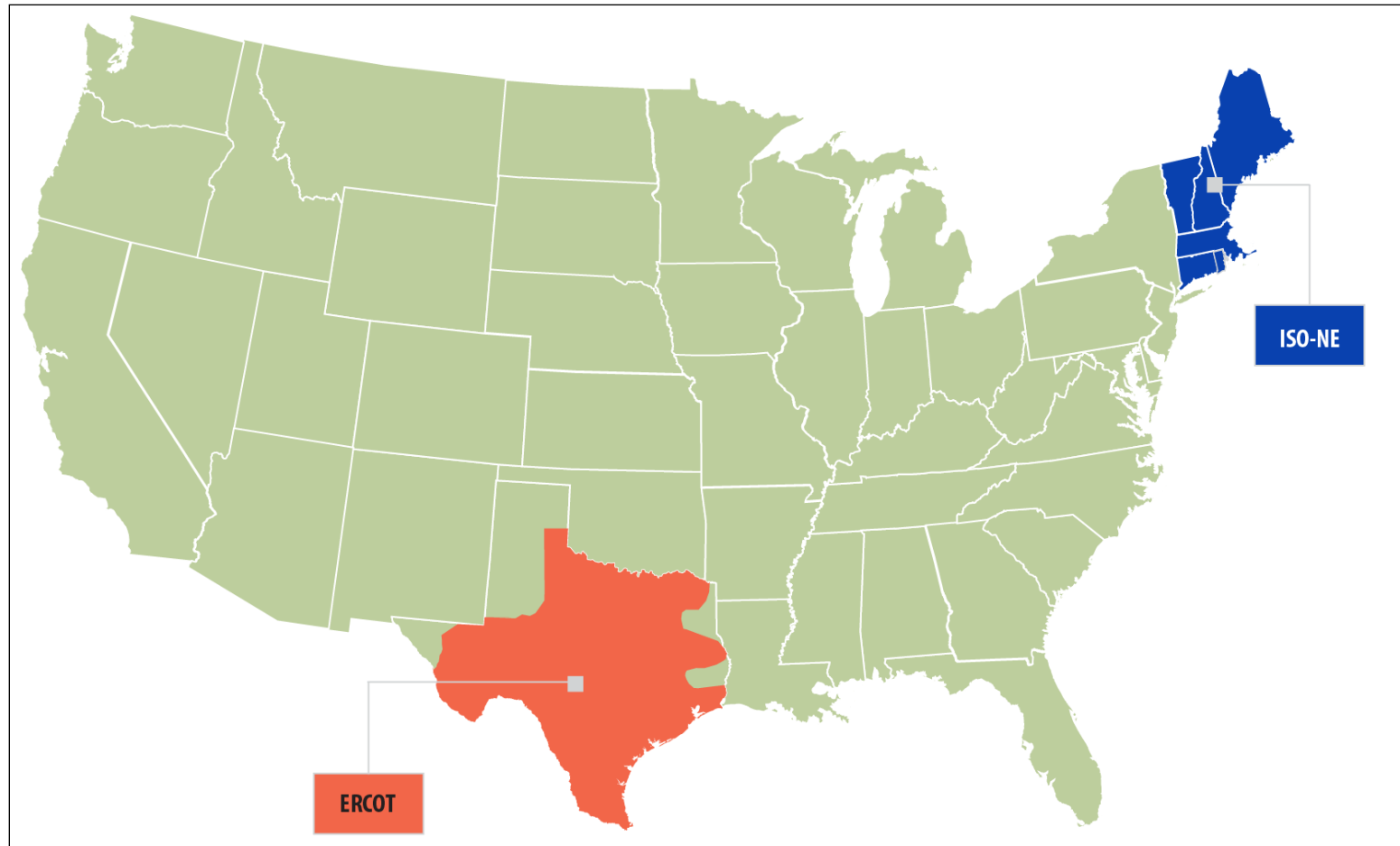
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<sup>31</sup> For a detailed comparison of equipment cost, see EEI report, p. 33.

<sup>32</sup> NERC, *2011 Long-Term Reliability Assessment*, November 2011, p. 173, at [http://www.nerc.com/files/2011LTRA\\_Final.pdf](http://www.nerc.com/files/2011LTRA_Final.pdf). Hereafter, "2011 NERC Report."

<sup>33</sup> "Derating" refers to the loss of available capacity because of the power needed to operate the pollution control equipment.

<sup>34</sup> 2011 NERC Report, pp. 197-486. The report also states in the text and in several figures that two regions in the Midwest will experience reserve margins below 15%, but these statements appear inconsistent with the detailed analyses of each region that begin on page 197.

**Figure 2. Planning Areas with Anticipated Reserve Margins Below 15% in 2015**

**Source:** NERC 2011 Long-Term Reliability Assessment.

**Notes:** 1. Both ERCOT and ISO-NE are projected to have reserve margins below 15% whether or not EPA implements the MATS rule. 2. ISO-NE (New England) forecasts no major reliability issues, according to NERC, despite having anticipated reserve margins below 15% under some assumptions. 3. All other areas have anticipated reserve margins above 15% with or without MATS.

In both cases, the low reserve margins appear to have little to do with the Utility MACT or other EPA rules. In 2015, the ERCOT region will have 79,415 megawatts (MW) of anticipated generation capacity, giving it an anticipated reserve margin of 10.4%. Deratings and retirements due to EPA rules will have reduced that capacity by only 267 MW (0.34%), according to NERC.<sup>35</sup> The NERC data suggest that ERCOT may experience reliability problems, but the emission standards will play a minor role.

In New England, NERC reports conflicting information. It begins its analysis by stating:

For this *2011 Long-Term Reliability Assessment*, ISO New England Inc. (ISO-NE) forecasts no major reliability issues with respect to fuel supply, availability of both supply or demand-side resources, or the capability of the regional transmission system to serve the projected seasonal peak demands and energy requirements of the six-state New England subregion.<sup>36</sup>

Following this statement, however, the report shows reserve margins consistently below 15%. As with Texas, the low reserve margins would exist even in the absence of the Utility MACT. NERC finds that the new EPA regulations will cause 237 MW of retirements or deratings, 0.7% of the region's 32,649 MW of anticipated capacity.

According to NERC, the EPA rule will have its biggest impact in three regions known as PJM, MISO, and SERC-SE.<sup>37</sup> These areas cover 12 states in the Midwest and Mid-Atlantic, plus Alabama, Georgia, the District of Columbia, and small parts of four other states.<sup>38</sup> In SERC-SE, the area that covers Georgia and Alabama, the retirements and deratings remove 2.7% of anticipated capacity. But none of these areas falls below a 17% reserve margin.

## Time Needed to Comply

Following publication of the final standards in the *Federal Register*, existing power plants will have three years, with a possible one-year extension, to meet the standards. (The three-to-four-year timeframe is mandated by the statute.) Many in industry argue that three or four years is not enough time to complete installation of the required pollution control equipment, and as a result that the reliability of the nation's electric power supply could be harmed by the rule while construction is ongoing, even if ultimately the industry will have sufficient generating capacity. NERC did not say this directly, in part because its analysis combines the effects of four rules, making it difficult to disaggregate the Utility MACT's effect. What it did say was:

To comply [with the MACT Rule], owners of the remaining capacity need to retrofit from 277 to 753 units with added environmental controls. The "hard stop" 2015 compliance deadline proposed by the MACT Rule makes retrofit timing a significant issue and potentially problematic.<sup>39</sup>

Whether or not there is sufficient time to implement the rule without threatening electric system reliability will depend, to some extent, on the number of units that require retrofits. Both the EEI and NERC analyses discussed above assumed requirements that appear to be substantially more stringent than what EPA has promulgated. If EPA is correct in its analysis of how EGUs can

<sup>35</sup> 2011 NERC Report, p. 156.

<sup>36</sup> 2011 NERC Report, p. 295.

<sup>37</sup> 2011 NERC Report, p. 156.

<sup>38</sup> For a map of NERC's Long Term Assessment Areas, see p. 4 of the 2011 NERC Report. The states include all or most of Alabama, Georgia, Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, New Jersey, Ohio, Pennsylvania, Virginia, West Virginia, and Wisconsin, and parts of Florida, Mississippi, North Carolina, and North Dakota.

<sup>39</sup> 2010 NERC Report, p. V.

comply with the rule, the number of retrofits appears to be within the range of what the industry has accomplished in the past as a result of earlier regulations. For additional discussion, see CRS Report R41914, *EPA's Regulation of Coal-Fired Power: Is a "Train Wreck" Coming?*

Although EPA believes that most units will be able to comply with the Utility MACT within the three-year statutory deadline, in response to industry comments on the proposed rule, EPA and the White House added provisions to the final rule that will make additional time available for compliance where necessary. The final rule was accompanied by a Presidential memorandum directing the agency to make full use of the Clean Air Act's authority to grant additional time to those facilities that need it.<sup>40</sup> In general, this means that the agency will approve state permitting actions that provide an additional year (four years instead of three) for compliance if it is "necessary for the installation of controls." In the Preamble to the final rule, EPA discusses at some length its interpretation of the phrase "necessary for the installation of controls," making it clear that it intends to broadly interpret the phrase in order to make additional time available where needed.<sup>41</sup>

EPA also issued an enforcement policy that describes how units may obtain a fifth year for compliance under the agency's authority in Section 113 of the Clean Air Act.<sup>42</sup> The policy states:

The EPA generally does not speak publicly to the intended scope of its enforcement efforts, particularly years in advance of the date when a violation may occur. The Agency is doing so now with respect to the MATS to provide confidence with respect to electric reliability....

Some sources may take all steps necessary to comply with the MATS, but may nevertheless be needed to operate in noncompliance with the MATS to address concerns with electric reliability. In the event that such sources are interested in receiving a schedule to come into compliance while operating, the EPA intends, where necessary to avoid a serious risk to electric reliability, and provided the criteria set forth herein are met [these criteria essentially require timely notice to EPA and the appropriate planning authorities], to issue an expeditious case-specific AO [Administrative Order] to bring a source into compliance within one year.<sup>43</sup>

## Legislation

As noted earlier, the proposed Utility MACT drew an extraordinarily large number of public comments. While many of these were duplicative, the agency said that it received about 20,000 unique comments.

Congress has also taken a keen interest in the proposal. H.R. 2401, the Transparency in Regulatory Analysis of Impacts on the Nation (TRAIN) Act of 2011, which the House passed September 23, has been one congressional response. The bill would establish a panel of

<sup>40</sup> The White House, Office of the Press Secretary, "Presidential Memorandum—Flexible Implementation of the Mercury and Air Toxics Standards Rule," at <http://www.whitehouse.gov/the-press-office/2011/12/21/presidential-memorandum-flexible-implementation-mercury-and-air-toxics-s>.

<sup>41</sup> EPA, Mercury and Air Toxics Standards, pre-publication copy, pp. 576-591, at <http://www.epa.gov/airquality/powerplanttoxics/pdfs/20111216MATSfinal.pdf>.

<sup>42</sup> "The Environmental Protection Agency's Enforcement Response Policy for Use of Clean Air Act Section 113(a) Administrative Orders in Relation to Electric Reliability and the Mercury and Air Toxics Standard," Memorandum from Cynthia Giles, Assistant Administrator, Office of Enforcement and Compliance Assurance, to EPA Regional Administrators et al., December 16, 2011, 7 p. at <http://www.epa.gov/airquality/powerplanttoxics/pdfs/EnforcementResponsePolicyforCAA113.pdf>.

<sup>43</sup> Ibid., p. 4.

representatives from 11 federal agencies to report to Congress by August 2012 on the cumulative economic impact of the Utility MACT and a number of other listed EPA rules, guidelines, and actions concerning clean air and waste management. It would render the Utility MACT and another rule that EPA has promulgated to address power plant emissions (the Cross-State Air Pollution Rule) “of no force and effect”; it would delay promulgation of a replacement for the Utility MACT until at least one year after submission of the cumulative impacts report and delay compliance for at least five years after that date; and it would require that the replacement rule impose the least burdensome regulatory alternative from among the alternatives authorized under the Clean Air Act, among other provisions.

The Senate has not acted on H.R. 2401. A Senate bill, S. 609, similar to an earlier version of H.R. 2401, has also seen no action. For the Senate to act on either bill would generally require a favorable report from the committee of jurisdiction (the Senate Environment and Public Works Committee) and the votes of 60 Senators in order to get the bill considered on the floor.

There is another route, however, that removes the main obstacles to Senate action on the regulations: the Congressional Review Act (CRA). Under the CRA, after a rule is final and is transmitted to Congress, the Congress can consider a resolution of disapproval under special procedures. If a CRA resolution disapproving a rule is enacted, the rule cannot take effect, and the agency may not reissue either that rule or any substantially similar one, except under authority of a subsequently enacted law. It is widely expected that CRA resolutions disapproving the Utility MACT will be introduced during the second session of the 112<sup>th</sup> Congress.

What is unique about CRA resolutions is that the act provides special procedures to make it easier to obtain a vote in the Senate. CRA resolutions come to the Senate floor if 30 Senators sign a discharge petition within a specified period of time. Once a disapproval resolution is on the Senate Calendar, a motion to proceed to consider it is in order; the motion is not debatable and cannot be filibustered through extended debate. Debate is limited to 10 hours and amendments are prohibited. (For additional information on Congressional Review Act procedures, see CRS Report RL31160, *Disapproval of Regulations by Congress: Procedure Under the Congressional Review Act*, by Richard S. Beth.)

Although it may be easier to obtain congressional approval of a CRA resolution, the path to enactment of such a resolution is still a steep one. The Obama Administration has made a significant commitment to promulgation of the Utility MACT and considers it one of the Administration's major achievements. As a result, legislation restricting EPA's authority to act, if passed by Congress, would likely encounter a presidential veto. There are no special procedures for Senate consideration of a CRA veto override. Overriding a veto (whether for a resolution of disapproval or other legislation) requires a two-thirds majority in both the House and Senate, and is seen by many as unlikely.

Unless the Presidency changes hands in the next election, that would leave the courts as the most likely venue for a successful challenge to the rule. A court challenge can take years. The challenge to EPA's 2005 utility mercury rule, for example, took nearly three years before the D.C. Circuit Court of Appeals overturned it. In the meantime, unless stayed by the court, the rule will be in effect, and power companies, facing a tight deadline, will need to begin the planning, design, and construction necessary to comply with the standards.



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